

CLAIMS

1. A method for manufacturing a glass substrate for an information recording medium manufactured by polishing the surface of a raw material glass plate, the method being characterized in that:

the polishing is divided into two steps, a step for performing a first polishing process to roughly polish the surface of the raw material glass plate to be smooth and a step for performing a second polishing process to finely polish the surface of the roughly polished raw material glass plate to be smoother;

the second polishing process, using a polishing pad made of foam, is divided into two stages, which are pre-polishing with a polishing agent including abrasive grains of cerium oxide and post-polishing with a polishing agent including abrasive grains of silicon oxide; and

a rinsing process is performed between the pre-polishing and the post-polishing to rinse the raw material glass plate after the pre-polishing with a washing liquid to wash away the abrasive grains collected in the polishing pad in pre-polishing during the rinsing process.

2. The method for manufacturing a glass substrate for the information recording medium according to claim 1, wherein the abrasive grains of cerium oxide have a mean grain diameter (D_{50}) of 1.5 μm or less and are smaller than a nap formation hole for the polishing pad.

3. The method for manufacturing a glass substrate for the information recording medium according to claim 1 or 2, characterized in that the abrasive grains of silicon oxide have a grain diameter that is smaller than the grains of

cerium oxide, a mean grain diameter (D_{50}) of less than or equal to $0.2\mu\text{m}$, and are smaller than the aperture diameter of the nap formation hole for the polishing pad.

5 4. The method for manufacturing a glass substrate for the information recording medium according to any one of claims 1 to 3, characterized in that the second polishing process has a total task time of 7 to 45 minutes.

10 5. The method for manufacturing a glass substrate for the information recording medium according to any one of claims 1 to 4, characterized in that the post-polishing has a task time of 1 to 40 minutes.

15 6. The method for manufacturing a glass substrate for the information recording medium according to any one of claims 1 to 5, characterized in that the rinsing process has a task time of 1 to 20 minutes.

20 7. The method for manufacturing a glass substrate for the information recording medium according to any one of claims 1 to 6, characterized in that in the rinsing process, load applied to the raw material glass plate by the polishing pad is lower than that in the pre-polishing.

25 8. The method for manufacturing a glass substrate for the information recording medium according to any one of claims 1 to 7, characterized in that in the rinsing process, load applied to the raw material glass plate by the
30 polishing pad is the same as or lower than that in the post-polishing.

9. The method for manufacturing a glass substrate for

the information recording medium according to any one of claims 1 to 8, characterized in that load related to the rinsing process is 25 to 70 g/cm².

5 10. A glass substrate for an information recording medium obtained from the manufacturing method according to any one of claims 1 to 9, the glass plate characterized in that:

 micro waviness height (NRa) of a surface measured by a
10 three-dimensional surface structure analyzing microscope, with a measuring wavelength (λ) set at 0.2 to 1.4 mm, is 0.15 nm or less.

 11. A polishing device for manufacturing a glass
15 substrate for an information recording medium by polishing a surface of a raw material glass plate, the polishing device being characterized by:

 a polishing pad made of a foam, the polishing pad performing with the raw material glass plate polishing that
20 is divided into two stages, which are pre-polishing with a polishing agent including abrasive grains of cerium oxide and post-polishing with a polishing agent including abrasive grains of silicon oxide; and

 a rinsing process performed between the pre-polishing
25 and the post-polishing for rinsing the raw material glass plate after the pre-polishing with a washing liquid, the polishing pad including a nap layer with an inner layer, having a plurality of independent bubbles, and an outer layer formed in its surface, having a plurality of nap
30 formation holes with an extremely fine size compared to the independent bubbles, the nap formation holes being open at the surface of the polishing pad so that the abrasive grains collected in the polishing pad in the pre-polishing are

washed away during the rinsing process.

12. The polishing device according to claim 11,
characterized in that the nap formation holes of the
5 polishing pad have a hole diameter of 2 μm or greater and 20
 μm or less, and a depth of 2 μm or greater and 100 μm or
less.

13. The polishing device according to claim 11 or 12,
10 further being characterized by a lower polishing plate and
an upper polishing plate arranged rotatably about a rotation
shaft, and a carrier, arranged between the upper polishing
plate and the lower polishing plate, for supporting a
plurality of raw material glass plates, the surfaces of the
15 raw material glass plate being polished by the polishing pad
by rotating the upper polishing plate and the lower
polishing plate in a state in which the polishing pad is
attached to the lower polishing plate and the upper
polishing plate as necessary.